

19. Discuss various methods of culture preservation.
20. Elaborate on the working principle of transmission electron microscope with a neat sketch. Add a note on its applications and limitations.

NOVEMBER/DECEMBER 2025

**23UFMB14/23IFMB14 — INTRODUCTION
TO MICROBIAL WORLD**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Differentiate between virion and prion.
2. Who is the father of antiseptic surgery? Explain.
3. State any two characteristics of prokaryotes.
4. What are thermophilic bacteria?
5. Nitrogen fixing bacteria improve soil fertility- Justify.
6. What are restriction enzymes?
7. MTCC - Expand.
8. Name the process which uses freeze drying method to preserve microorganisms.



9. What is the main idea of dark field microscopy?
10. Rate the importance of Gram staining in identifying bacteria.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) How did Koch and Pasteur contribute to germ theory of disease?

Or

- (b) Give an account on discovery of viruses.

12. (a) Compare and contrast prokaryotic and eukaryotic cells.

Or

- (b) Write a short note on microbial diversity with special reference to habitat.

13. (a) Microbes impact our everyday lives – Explain.

Or

- (b) Discuss the role of microbes in genetic engineering.

14. (a) How would you obtain a pure culture from an environmental sample containing many microbes?

Or

- (b) Rank the importance of culture collection centres and add a brief note on culture collection centres of India.

- (a) List the steps involved in differential staining.

Or

- (b) Add a note on significance of dyes and stains in microbiology.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. List the contributions of Winogradsky and Beijerinck in the field of soil microbiology.
17. Give a detailed account on various types of microorganisms.
18. Explain how the microbes are used as tools in biotechnology.

